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ABSTRACT

The concept of knowledge gap (the discrepancy in the amount of information acquired by different groups of people reached by mass communication) can be critically examined to consider its theoretical and practical implications in the context of using communication to bring about changes in society. Some causes of knowledge gap include differences in communication skills, the amount of prior knowledge, and the exposure and retention of information, as well as different communication modes. The two most important assumptions are that equitable distribution of knowledge is desirable and that the less privileged need to be helped more than the privileged. Other conclusions are that (1) the use of mass media ought to be combined with interpersonal communication, (2) the evaluation criteria of various campaigns ought to focus on the lower social class, (3) current media instruction programs need to be examined in relation to the knowledge gap concept, (4) knowledge gap studies may call for additional theoretical focus, and (5) it is not known whether the knowledge gap is a temporal or a relatively permanent phenomenon. (EL)

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Knowledge Gap: Theoretical and Practical Implications

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Knowledge Gap: Theoretical and Practical Implications

Communication research in the United States had been characterized for decades by a conceptual paradox. On the one hand, research findings suggested that effects of mass communication were differential in the amount of knowledge gained by different people. On the other hand, researchers promoted that mass media be put to their best use to help the less privileged sectors of a society to improve their lot. Representative of the first group were such findings of communication effects as those by Hyman & Sheatsley (1947), Lazarsfeld & Merton (1948), Cartwright (1949), Klapper (1960) and Bauer (1964). Such titles as "Some Reasons Why Information Campaigns Fail" and "The Obstinate Audience" reflect the pessimism about mass communication's capability of effecting desired changes. Characteristic of the second group of studies were the findings of such scholars as Lerner (1958), Schramm (1964) and Inkeles and Smith (1974). Titles like "Mass Media and National Development" and "Becoming Modern" speak of the optimism about mass communication's ability to elicit not only individual change but also societal or national change.

Although this paradox had existed for decades, it was not brought to the forefront until Tichenor, Donohue and Olien (1970) proposed the "knowledge gap" hypothesis. Explicitly, they stated:

> As the infusion of mass media information into a social system increases, segments of the population with higher socio-economic status tend to acquire this information at a faster rate than the lower status segments so that the gap in knowledge between these segments tends to increase rather than decrease (Tichenor,Donohue, & Olien, 1970, p. 159).

One major purpose of development programs, whether in a developing or developed country, is to improve the living conditions or quality of life of the lower social strata. The "knowledge gap" hypothesis seems to have posed a direct challenge to the assumption underlying the use of mass media in development programs for, if the "knowledge gap" really exists or even widens as a result of purposeful mass media campaigns, it will defeat the purpose of all development programs. In terms of theoretical implications, the "knowledge gap" hypothesis may also call for a substantial revision of existing knowledge about media and change.

The purpose of this paper is to critically examine the concept of knowledge gap and to consider its theoretical and practical implications in the context of using communication to bring about changes in society. This endeavor, though important, is rarely engaged when research concepts are explicated.

The Concept Reexamined

As Tichenor, Donohue and Olien conceive it, knowledge gap is a relative gap between the higher educated and the lower educated. That is, the lower social strata also gain in knowledge though the amount is smaller than that gained by the higher social strata. Over the years, the three authors have listed a number of important reservations in connection with their hypothesis. First, they indicate that the knowledge gap they have discussed is limited

to either politics or science (Tichenor, Olien & Donohue, 1976; Donohue, Tichenor & Olien, 1975), and not about other topics. Second, the knowledge measured by the three researchers is mainly spread by the print media, which have an elitist connotation in favor of the higher strata. Third, their hypothesis of an ever-widening gap suggests that there is no limit to knowledge growth. They suggest that because of the vast amount of information available to the higher educated there, in fact, may be a kind of "information fatigue." If this should occur, it would mean the absorption of knowledge by the higher educated would decrease and the lower educated would have a chance to catch up and close the gap. Fourth, the growth of knowledge may occur in different ways, but it is unlikely reversable. With this, the researchers eliminate a kind of "memory gap" because the more one learns the more one can forget.

At least three basic assumptions behind the researchers' knowledge gap hypothesis need to be discussed, but have not been done by scholars who explicate it (e.g., Gaziano, 1983).

First, the knowledge gap hypothesis seems to imply that the knowledge one gains from the mass media is necessarily adequate. Thus, knowledge gain matters to the people. However, this does not seem to be the case. Evidence shows that media's coverage of politics is generally inadequate (Chu, 1981) and neither is that of science (Larsen, 1973). This consideration should require us to consider not only the quantity of knowledge gained from the media but also the quality of knowledge gained from the media. While it is true that differential quantity of information gain

by the social strata may function as an effective social control mechanism and perpetuate the status quo (Donohue, Tichenor & Olien, 1972, 1973), the different quality of information gain (Dervin & Greenberg, 1972) by social strata functions in very much the same manner. Thus, knowledge gap must also be considered in "quality." This consideration in fact has led scholars like Mendelsohn (1974) to consider special programming on the media for the lower social strata.

Second, implicit in the knowledge gap hypothesis is that equitable distribution of knowledge is desirable and, if it can be achieved, equity in distribution of other social or economic resources will as a result come about. This assumption suggests that people of different social strata will and can put the information they have gained from the mass media to advantageous use. This again seems utopian. Werner (1975) found that in a Norwegian television campaign to encourage children of the poor to purchase books had resulted in more children of the rich buying books. That is, though the lower strata may gain in knowledge they may be structually restrained from putting to use the knowledge they have gained.

Third, implicit in the knowledge gap hypothesis is that knowledge will necessarily lead to action. This, however, does not seem to be the case. Studies in family planning practices (Schramm, 1971) have found that gaps exist not only between knowledge and attitude, but also between attitude and action. More specifically, people who are aware of family planning methods or their advantages may still hold anti-family planning attitudes

and those who do hold pro-family planning attitudes do not necessarily practice what they know. Studies on voting and political campaigns suggest that knowledge gained from media exposure will not necessarily lead to voting either as people are always differentiated in their devotion and orientation to their social system (Chaffee, 1975, p. 103). In an analysis of diffusion of agricultural innovations, Galloway (1977) has found that while knowledge gap may close up there is a tendency for the adoption gap to widen between the more privileged farmers and the less privileged farmers. This suggests that when implications or consequences of knowledge gap phenomena are considered, the concept be preferably replaced by "communication effects gap," as Rogers (1976) & Galloway (1977) have discussed.

The consideration of these three assumptions indicates that knowledge gap may be a concept with utopian connotations. Katzman (1974) has proposed that though over time gaps may be closed up, new information gaps may be created by new communication technologies and techniques, leaving the information-poor farther behind. Katzman's proposition is shared by Gunaratne (1976), who considers the existence of gaps part of human nature. Commenting on the "New Paradigm" in communication suggested by Rogers (1976), Gunaratne said:

> The suggested new pathways to development fail to recognize that gaps within and among countries can exist due to human nature itself. It is utopian to expect narrowing knowledge gaps among people with regard to all available information. In certain areas of knowledge, the gap may be narrowed through a well-planned communication campaign. But unless the campaign is sustained on a continuous basis, human nature will create the gap again. Development cannot create a population with equal knowledge, skills, values, etc. The Chinese are no exception. (Gunaratne, 1976, p. 13).

The reference to the Chinese experience is especially pertinent, as Rogers seems to have been fascinated with the kind of "equality" in distribution that has been "achieved in China" (Rogers, 1976). As post-Mao policies have indicated, China's equality may have been achieved at great sacrifice of an overall development. Furthermore, the Chinese experience, even though it were successful, would be difficult for developing countries to emulate (Chu, 1974).

Causes of Knowledge Gap

In their original article, Tichenor, Donohue and Olien (1970) have listed five factors that may explain the widening of knowledge gaps. These are: (1) differences in communication skills between the higher educated and the lower educated people, (2) differences in the amount of prior knowledge the people have, (3) differences in the amount, the quality, and the type of social contact relevant to the topic under study, (4) differences in selective exposure and retention of information and (5) the nature of the print media as primary sources of public affairs and science information. These are generally post hoc explanations, requiring empirical confirmation. Unfortunately, knowledge gap studies, with the few exceptions by Donohue, Tichenor and Olien (1975), Olien, Donohue and Tichenor (1978) and Genova (1975), usually do not contain systematic testing of these causal factors. Donohue, Tichenor and Olien (1975), using data from an earlier study (Tichenor, Donohue & Olien, 1973), suggest that in the case of local information the gap may close while in the case of national information the gap may widen. That is, local information is salient to the people in the community while national information is not salient. In

addition, they find that the intensity of a conflict may also account for the narrowing of gaps. In a later study (Olien, Donohue & Tichenor, 1978), they find that homogeneous community structure may also have an impact on narrowing the gap as the whole town may literally "talk about the topic" as a result of more interpersonal communication.

Reviewing studies on knowledge gap, Ettema and Kline (1977) suggest that in general two kinds of causal factors can be identified. The first kind they call audience-related factors. These have to do with the audience's communication ability, motivation, or media behavior. The second kind they call "message-related ceiling effects." These have to do with the fact that the information spread by the mass media may already be familiar to the higher educated, resulting in reaching a "knowledge ceiling." The first kind of factors, they argue, contains the causes that contribute to widening the gap, while the second kind of factors includes the causes that are conducive to narrowing the gap.

Considering the contingent conditions related to the audience, Ettema and Kline propose to redfine the knowledge gap in functional terms:

> as the infusion of mass media information into a social system increases, segments of the population motivated to acquire that information and/or for which that information is functional tend to acquire the information at a faster than those not motivated or for which it is not functional, so that the gap in knowledge between these segments tends to increase rather than decrease (Ettema & Kline, 1977, p. 188).

This revised definition adds to our understanding that knowledge gap may be a result of different perceptions of media message's functionality.

Elaborating on the "ceiling effects," Ettema and Kline suggest that gaps are likely to narrow under conditions of a source-imposed ceiling on the message, a true ceiling on the knowledge domain, or a self-imposed ceiling by the higher social economic status members of the society. This explication is helpful in understanding the possible causes of ceiling effects. However, their hypothesis that the higher SES members of a society may "self-impose" a ceiling on the knowledge they are to gain is very unlikely, as these more privileged people generally also have much higher need for achievement.

In addition to the two groups of causes of knowledge gap synthesized by Ettema and Kline, a third group of causes must be considered. In the studies by Tichenor and his associates, knowledge is spread by the print media. In Galloway's study (1977), it is spread by radio. Shingi and Mody's study (1976) has to do with television, and so does the one by Werner (1975). The study by McNelly and Molina (1972) deals with both radio and television, and that by Gaziano (1984) with neighborhood newspapers. Note that all these studies are essentially dealing with the diffusion of knowledge via mass media and they have shown different results of narrowed gaps. The narrowing of gaps in the studies by Tichenor and his associates has already been discussed elsewhere in this paper. Galloway's study shows a narrowing trend in the knowledge gap but a widening trend in the adoption gap. The Shingi and Mody study and the McNelly and Molina study show a narrowing gap as a result of "message-related ceiling effect." Werner's study shows

there is a widening gap between children of the poor and children of the rich. Differences in the results and the focus on the mass media suggest that this third group of causes may have to do with different communication modes involved. In all these studies, media-communication constitutes the major mode of knowledge diffusion. The question is: will the use of an additional communication mode together with the media-communication mode contribute to the narrowing of this knowledge or adoption gap? This is a very important area that ought to be considered [illegible] strategies or measures are devised to narrow the gaps.

Rogers (1976) also has shared this view:

> The hypothesis should not be limited to mass media efforts alone, but should include also the differential effects of interpersonal communication and the joint effects of mass media plus interpersonal communication, as measured by network analysis (p. 141).

Experiences in Bangaladesh (Rahim, 1976), Mainland China (Chu, 1976), India (Sharma, 1976), Taiwan (Huang, 1976), and Colombia (Beltran, 1976) seem to confirm what has been proposed above. Furthermore, these studies indicate the application of interpersonal communication in groups is especially powerful in narrowing the knowledge and adoption gaps.

Policy and Research Implications

As has been discussed, perhaps the two most important assumptions behind the knowledge gap hypothesis are that equitable distribution of knowledge is desirable and the less privileged need to be helped more than the more privileged. These two assumptions should form the core of all policy and research considerations.

First, to reiterate, development programs ought to focus on the less privileged social strata rather than the society as a whole. This concentration can impose a "message ceiling" on the knowledge gain the more privileged strata may have. Such a focus may appear unequal but is necessary if equity is the desired goal. The narrowing gap in the projects conducted by Shingi and Mody (1976) and Roling et al. (1976) was largely attributable to the capitalization of a message ceiling effect. It was achieved through the focus on the less privileged in the planning of their projects. Related to this focus is the demand for more research on the motivation and information salience (interest) structures of the less privileged. Such research should endeavor to identify not only those people who do catch up in the knowledge or adoption gap but also those people who fail to gain any knowledge or adopt an innovation. Such research should also focus on identifying those social, economic, and political structural factors which are beyond the lower social strata's control. This information about the latter will be extremely important in designing messages and planning communication strategies.

Second, while mass media are effective in creating a general conducive atmosphere to change, as in the case of promotion of family planning practices, their use ought to be combined with interpersonal communication. Mass media can be used to provide general social support and to redistribute knowledge to people not reached by traditional channels of communication (McNelly, 1973). Interpersonal communication channels ought to be utilized to reach directly and influence the less privileged who need to be changed

most. In Schramm's dynamic metaphor, the mass media can be used as the artillery and the interpersonal communication channels as the infantryman (Chu, 1977, p. 17). Both are needed in the occupation of an enemy place, so are they in achieving change.

Third, campaigns are traditionally evaluated in terms of the total number of people reached or the total number of adoptions achieved. This evaluation criterion ought to be revised to give focus on the lower strata. The World Bank, for instance, reportedly has been measuring its program impacts by assigning heavier weights to income increases in the lower strata in the population than those in the upper strata (Roling, et al., 1976, p. 73). In other words, the criterion will be the extent the gap is narrowed rather than the absolute number of adoptions. Evaluation criterion so devised will force extension workers to concentrate their efforts on the lower strata, who are generally more difficult to reach and to change but are more in need of help than those of the upper strata, who are more adaptable to change and need less help. This revised evaluation criterion should apply in agricultural extension projects, promotion of family planning practices, general social welfare programs, and even in teaching programs as well.

Fourth, current media instruction programs need to be reexamined in the context of knowledge gap as well. Cook (1975) has found that the "Sesame Street" program had benefited children of the lower strata less than children of the higher strata. If so, we ought to reconsider the current practice of putting such programs on the mass media. Other means, such as the use of videotapes for distribution to shcools of less privileged students, ought to be considered.

Related to this consideration is the increasingly popular use of media for adult education (Hawkridge, 1977). Future evaluations ought to consider the number of people in the lower strata who have been benefited rather than the total number of students enrolled in such projects. Such a refocus will force project coordinators to concentrate on recruitment of the less privileged rather than the more privileged, who consitute most of the students now enrolled in such programs.

Fifth, knowledge gap studies may call for additional theoretical focus. One possible theoretical consideration will be the adoption of a social stratification perspective to view the role of information in social mobility. This perspective will yield significant findings regarding the different information, quality and quantity, available to different social strata of people. Such knowledge will have significance for the planning of development programs. This theoretical focus seems especially urgent as new media technologies are being diffused and adopted at accelerated speed and societies are becoming increasingly "informational" (Schramm, 1978).

Sixth, knowledge gap studies are for the most part one-shot surveys. Thus, we really do not know whether knowledge gap is a temporal phenomenon or a relatively permanent phenomenon. Future studies ought to include time-series consideration in the design to measure the results of information gain at least at two points of time and preferably three points of time. Furthermore, a control group ought to be used for the measure of change in information gain.

Although much discussion has been devoted to the policy implications of the knowledge gap hypothesis, it should be clear by now

that the knowledge gap can only be narrowed, not eliminated. The reorientation in development program planning, the restructuring of the meassages to include an artifical ceiling, and the focus on finding out more about the less privileged are all measures to narrow, not to eliminate, the gap. Note that successful gap-narrowing information campaigns have utilized the measure of "imposed message ceiling." As indicated earlier, this gain in knowledge can only be maintained if such campaigns are conducted on a continuous basis. This, unfortunately, is unlikely to be the case. To sustain any campaigns on a continuous basis may require a fundamental restructuring of the mass media industry to ensure it to respond more to societal than commercial concerns. Such is certainly not to come about easily or quickly.

As discussed above, knowledge gap is a concept with utopian connotations. In view of the rapid popularization of modern information technology, it can in fact be widened even more in the foreseeable future. Katzman (1974) has observed:

> Training and access to computers, satellites, and other technologies give the information-rich a different type of advantage over the information-poor. It is not just a case of their having seen, read, or heard more than other people. The advantaged group has a staggering amount of potential information available that others cannot begin to tap (p. 52).

In discussing the equitable distribution of development, China has often been referred to as a model. Rogers (1976), in particular, has been a major proponent. China's experience indeed needs to be examined closely. Increasing evidence suggests that the opposite may be the case. Furthermore, though China might

have achieved an apparent equitable distribution of social, economic, and political resources for some period of time, one ought to consider the considerable cost involved. Sociologist Berger (1974) has in fact rejected China as a development model outright. He said:

> Brazil and China are commonly perceived as opposite poles among development models - as respectively, the biggest capitalist and socialist experiments in the Third World - and thus as decisive alternatives for the future. Yet in one morally crucial respect the two belong in the same category: Both models are based on the willingness to sacrificet at least one generation for the putative goals of the experiment. Both sets of sacrifice are justified by theories. The theories are delusional and the sacrifices indefensible. Rejection of both the Brazilian and the Chinese models is the starting point for any morally acceptable development policy (p. xiii).

Equality is a lofty ideal which people ought strive to achieve. To use "false" models for emulation will not serve the purpose. In promoting models for emulation, the "calculus of pain" must also be included in the equation.

To conclude, knowledge gap, as a useful research concept that has generated many meaningful studies, also serves as a potent source of stimutation for scholars and development communication planners to take a more critical look at their programs. Although the closing of knowledge gaps is utopian, will never be achieved, more critical thinking about who is to benefit is sure conducive to the equalization of social resources.

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